INTERMOUNTAIN STATION
Central Reference File
No. 0.73

Research Note

NORTHERN ROCKY MOUNTAIN
FOREST AND RANGE EXPERIMENT STATION

FOREST SERVICE
RECEIVED
SEP 27 1941
RESEARCH
INTERMOUNTAIN

Missoula, Montana

No. 16 September 5, 1941

DETERMINING TREE D.B.H. FROM STUMP MEASUREMENTS

by
Division of Forest Products[1/]

Sherlock Holmes, the famous detective of fiction, once made a study of footprints and finally became so expert that he could tell the size of a man by looking at his tracks. Holmes was a systematic sort of fellow and he probably carried a chart in his pocket which showed how large a man was if his track was a certain size. This chart, in turn, was probably prepared by taking measurements of men and the size of their tracks. It was all quite simple; almost anybody could have done it.

It is also a simple matter to tell how large a tree is, or was, by looking at its stump. Charts showing the relationship between stump size and tree diameter appear on the next five pages. Charts are shown for western (Idaho) white pine, ponderosa pine, western larch, Douglas-fir, and Engelmann spruce. The charts were prepared from standing trees by taking measurements with a diameter tape at breast height (4.5 feet above the ground); also at the following heights above average ground level: 3.5 feet, 2.5 feet, 2.0 feet, 1.5 feet, 1.0 foot, and 0.5 foot. After enough measurements were taken, the attached charts were prepared. To use a chart, measure the diameter outside bark at some selected height on the stump, consult the chart, and read the corresponding diameter of the tree at breast height. This method should be quite accurate provided a diameter tape is used in measuring the diameter of the stump, and provided further that the tree was more or less normal in shape. In obtaining data for the charts, trees of normal shape were measured. Trees with large catfaces, large burls, or other pronounced irregularities were passed by.

Of what use are such charts? Probably their chief use as far as the practical lumberman is concerned, is in cases of timber trespass. He finds the stumps, but how large were the trees? The chart tells. Another use is in growth and yield studies. Let's assume an area has been selectively logged, say, a number of years ago, and there now is a certain volume per acre. But how much timber was taken in the original cut? No one seems to remember. But the chart will tell provided, of course, that the stumps are in good condition for measurement.

1/ Field measurements were made by Ralph Hansen and Don Geil, formerly field assistants in the Division of Forest Products, and drafting was done by John LaCasse. This research note was prepared by E. F. Rapraeger, in charge of the division.

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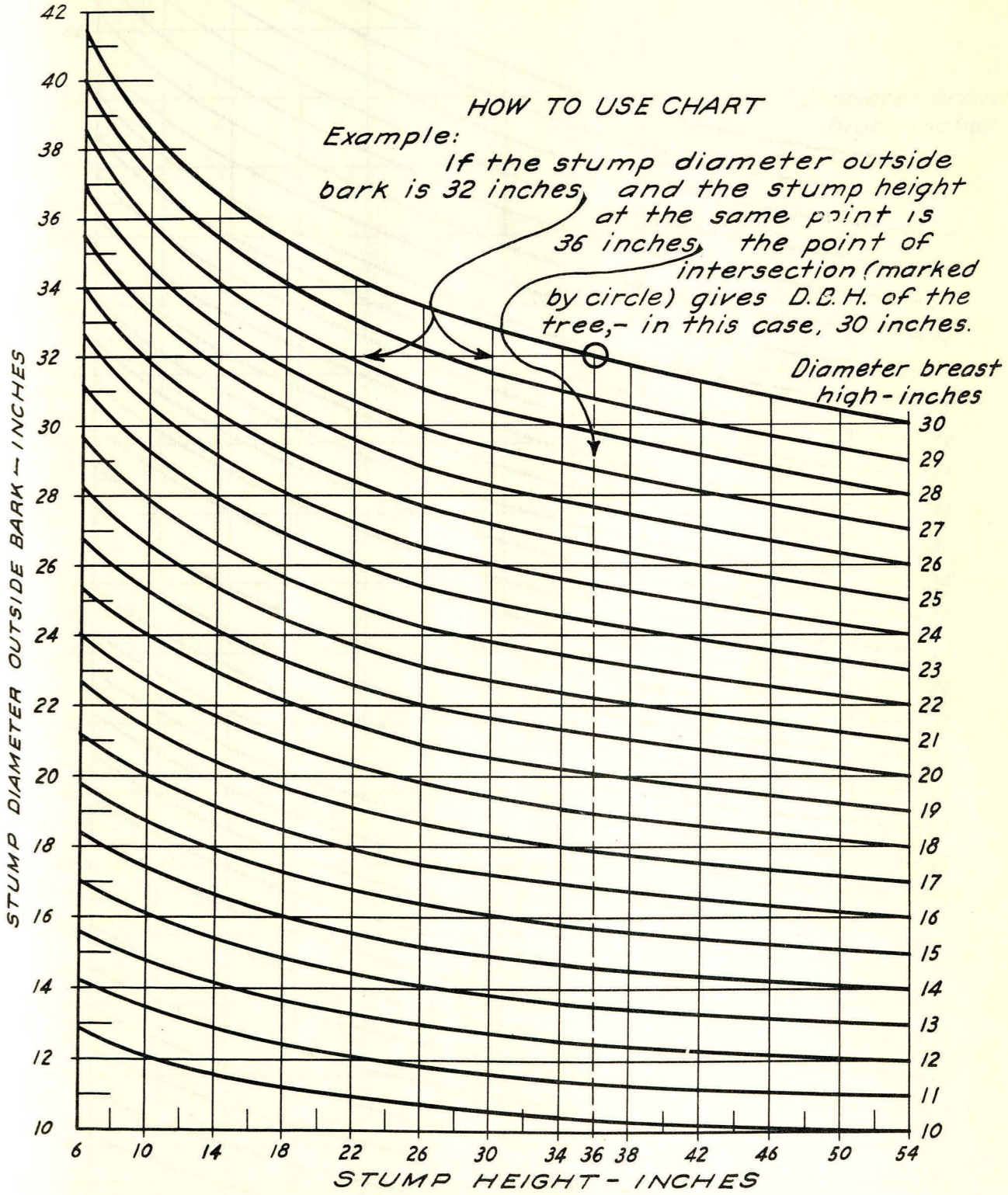
IDAHO WHITE PINE

Basis — 138 trees
Locality — Deception Creek,
Coeur D'Alene N. F.



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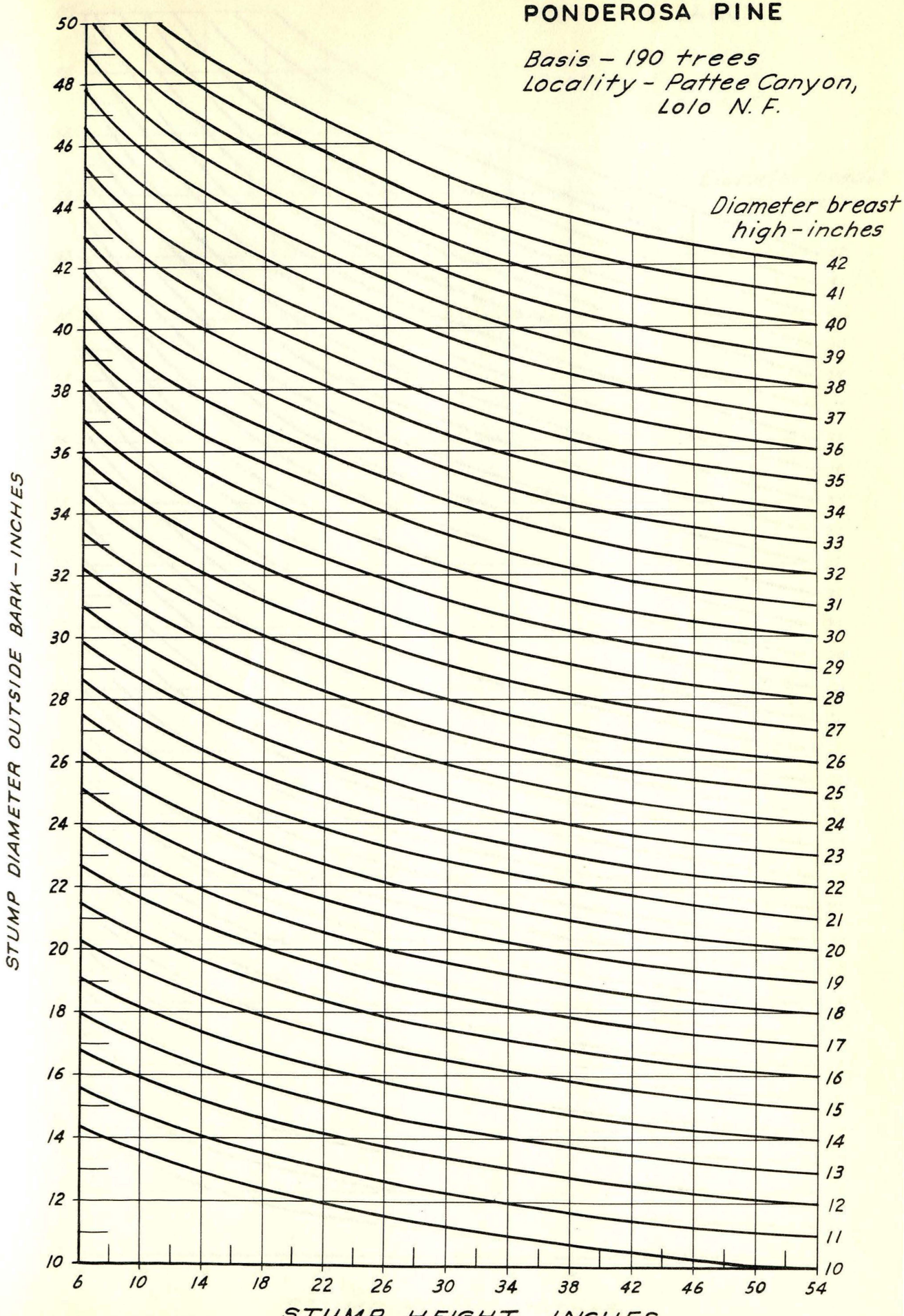
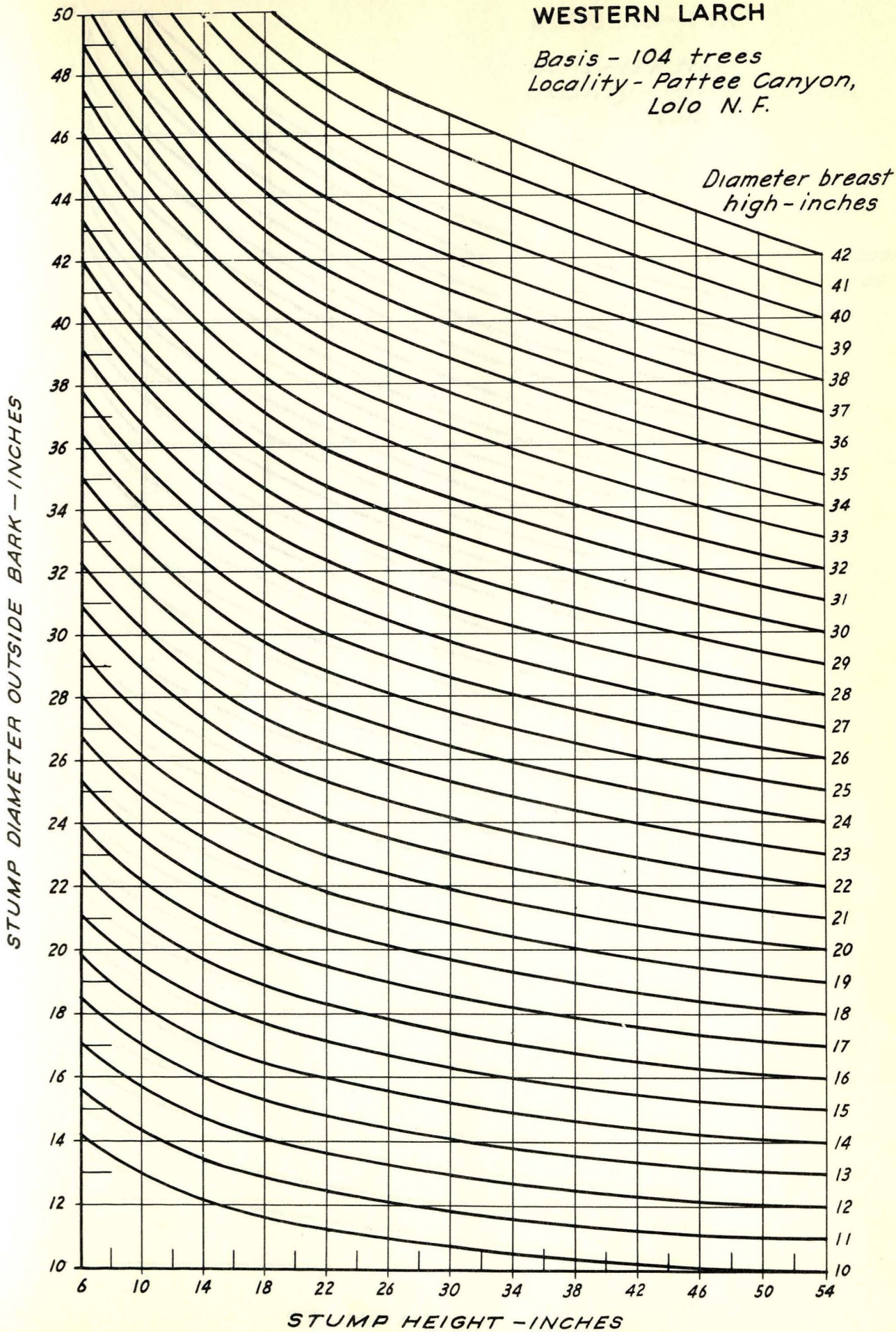
PONDEROSA PINE

Basis – 190 trees
Locality - Pattee Canyon,
Lolo N. F.



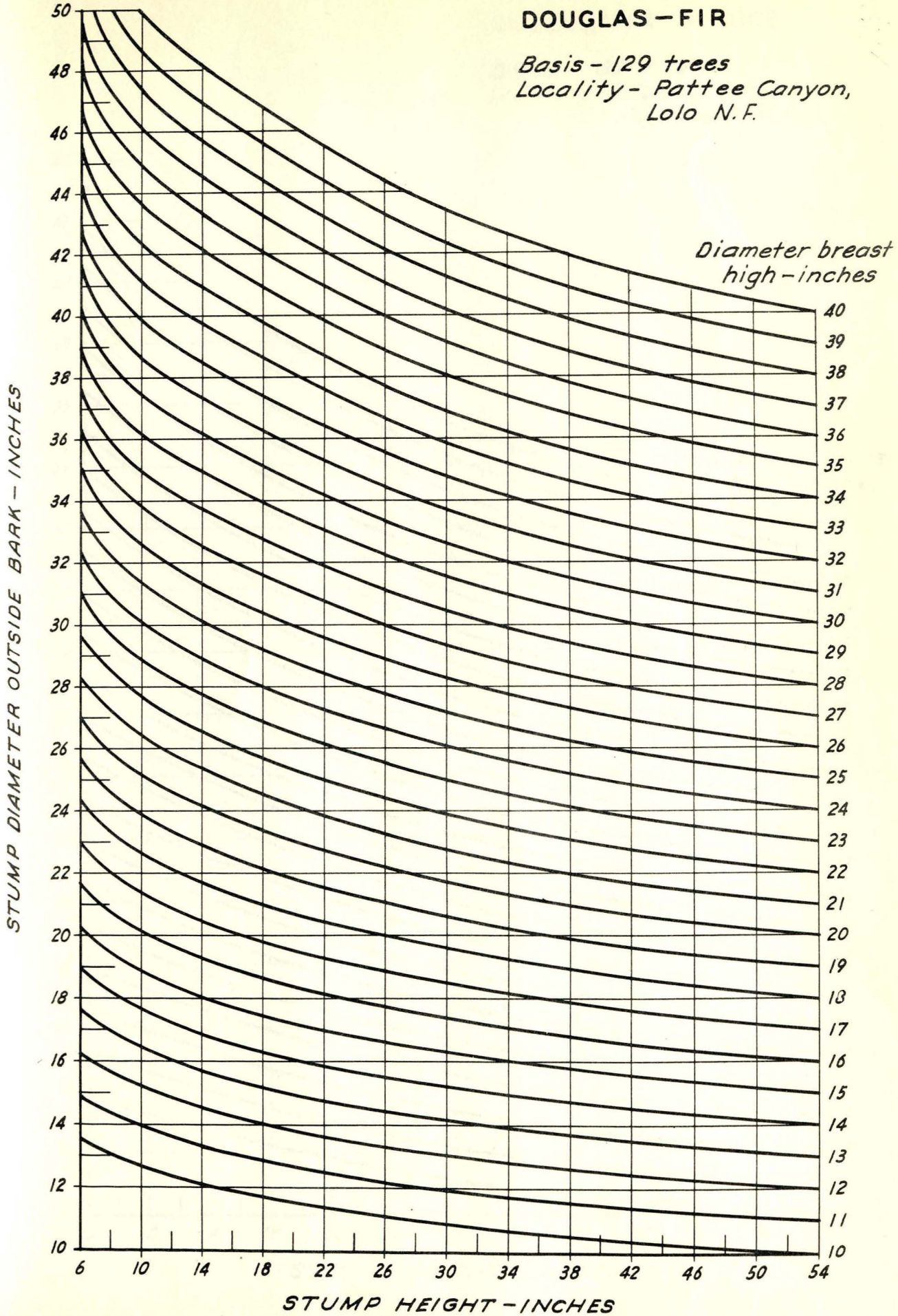
WESTERN LARCH

Basis - 104 trees
Locality - Pattee Canyon, Lolo N. F.



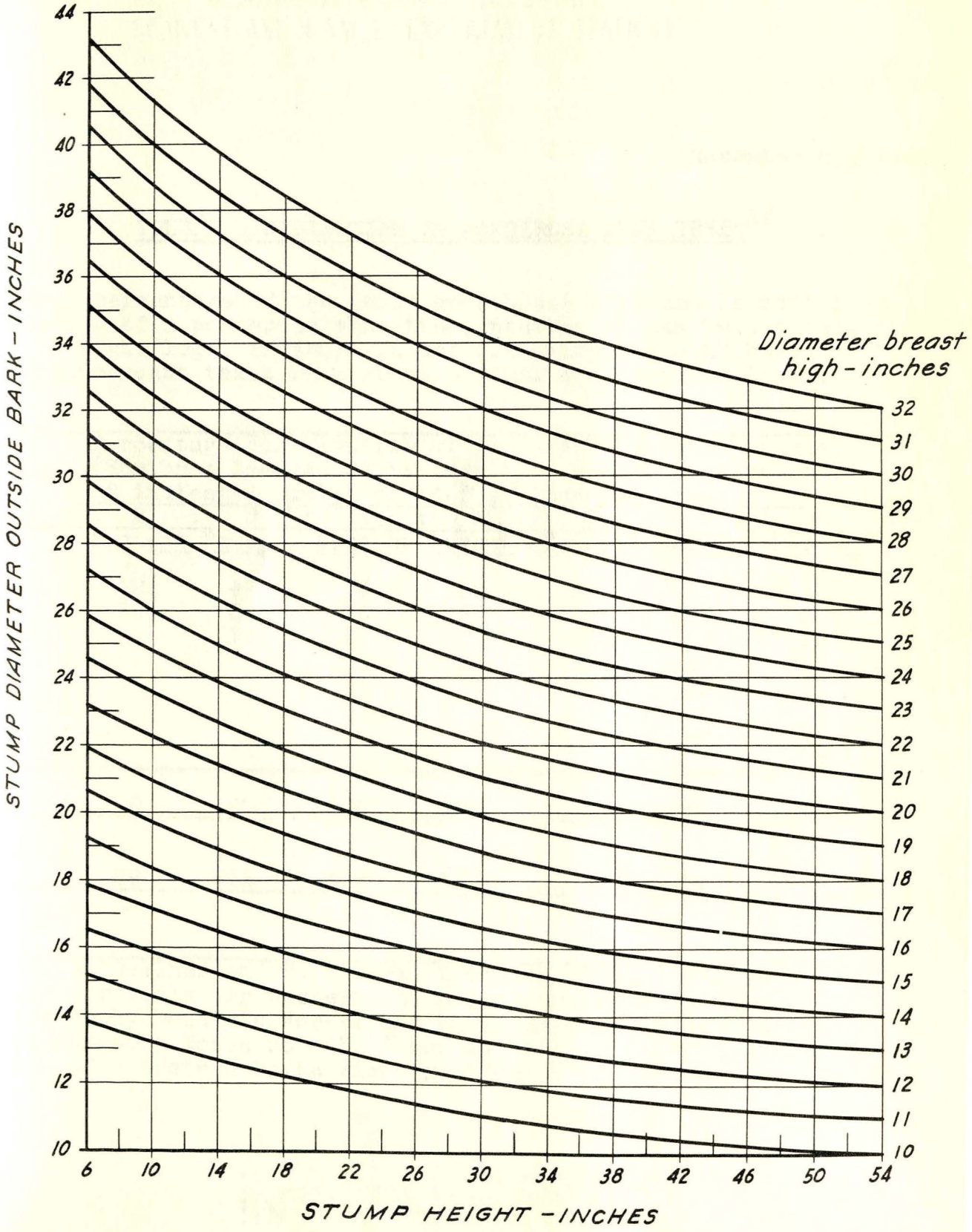
DOUGLAS-FIR

Basis - 129 trees
Locality - Pattee Canyon, Lolo N.F.



ENGELMANN SPRUCE

Basis - 87 trees
Locality - Cedar Creek,
Flathead N.F.



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